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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,276	09/26/2003	Guergui Bonov Chkodrov	003797.00623	4935
28319 7590 07/03/2008 BANNER & WITCOFF, LTD. ATTORNEYS FOR CLIENT NOS. 003797 & 013797 1100 13th STREET, N.W. SUITE 1200 WASHINGTON, DC 20005-4051				
EXAMINER				
CHANNAVAJALA, SRIRAMA T				
ART UNIT		PAPER NUMBER		
2166				
MAIL DATE		DELIVERY MODE		
07/03/2008		PAPER		

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/670,276  
Filing Date: September 26, 2003  
Appellant(s): CHKODROV ET AL.

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Phoebe P. Bower  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 4/21/08 appealing from the Office action  
mailed 6/27/07.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

U.S. Patent Application Ser. No. 10/157,968, Pub. No. US 2003/0225769,  
pending with BPAI.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement at page 9, item (2) and (4) of the grounds of rejection to be reviewed on appeal is correct.

**GROUND OF REJECTION WITHDRAWN.**

In view of applicant's arguments at page 10-15, the rejection under 35 USC 112 2<sup>nd</sup> paragraph is hereby withdrawn.

In view of applicant's filed "Terminal Disclaimer" on 4/21/2008, the doctrine of obviousness type double patent rejection as set forth in the final office action mailed on 6/27/2007 is hereby withdrawn

### **(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

### **(8) Evidence Relied Upon**

6,477,525	Bellow et al.	11-2002
2003/0217075	Nakano et al.	11-2003
2004/0139061	Colossi et al.	01-2003

### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

#### **Claim Rejections - 35 USC § 101**

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. ***Claims 1-46 are rejected under 35 U.S.C. 101 because invention is directed to non-statutory subject matter.***

***As set forth in MPEP 2106(II)A:***

*Identify and understand Any Practical Application Asserted for the Invention. The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." State Street, 149 F.3d at 1373,*

47USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of “real world” value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research (Brenner v. Manson, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96); In re Ziegler, 992, F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)). Accordingly, a complete disclosure should contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful.

Apart from the utility requirement of 35 U.S.C. 101, usefulness under the patent eligibility standard requires significant functionality to be present to satisfy the useful result aspect of the practical application requirement. See Arrhythmia, 958 F.2d at 1057, 22 USPQ2d at 1036. Merely claiming nonfunctional descriptive material stored in a computer-readable medium does not make the invention eligible for patenting. For example, a claim directed to a word processing file stored on a disk may satisfy the utility requirement of 35 U.S.C. 101 since the information stored may have some “real world” value. However, the mere fact that the claim may satisfy the utility requirement of 35 U.S.C. 101 **does not mean that a useful result is achieved under the practical application requirement. The claimed invention as a whole must produce a “useful, concrete and tangible” result to have a practical application.**

2. Regarding claim 1, "A method for maintaining information regarding multiple instances of an activity, each instance having an active condition in which .....modified, the method comprising:

creating a record in a first database.....

assigning, for records of the multiple instances.....

deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing the size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition; and

creating, for records deleted .....database table" is directed to "abstract idea" because all of the elements in the claim 1 would reasonably be interpreted by one of ordinary skill in light of the disclosure at page 11, [26], page 12-16 [32], page 19 [38], page 20-21 as software, such that the method is software, per se, is "non-statutory subject matter" and ***claim 1 do not have*** "practical application" because the "final result" by the claimed invention in the claim 1 elements particularly ***"deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing a size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition; and creating, for records deleted from the first table, a corresponding record in a second database table"*** is not producing "useful, tangible and concrete" and therefore, claim 1 is a non-statutory subject matter.

The claimed invention is subject to the test of State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. Specifically State Street sets forth that the claimed invention must produce a **“useful, concrete result.”** In other words “the claims lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. They are, at best, functional descriptive material *per se*.”

The **Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility** states in section IV C. 2 b. (2) (on page 21 in the PDF format):

The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. However, the tangible requirement does require that the claim must recite more than a § 101 judicial exception, in that the process claim must set forth a practical application of that § 101 judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77 (invention ineligible because had “no substantial practical application.”).

If, Claim 1 have the result of producing “real-world” results related to ***“deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing a size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition; and creating, for records deleted from the first table, a corresponding record in a second database table”*** however the claim[s] do not specify that the result either output, displayed or at least stored to a user, but merely manipulating database table record instances particularly values in the

fields, furthermore, without practical usage of the "creating, for records deleted from the first table, a corresponding record in a second database table" and without producing "real-world" useful results to the user

The examiner reviewed the specification at page 11, [26], page 12-16 [32], page 19 [38] , page 20-21 but was unable to find a practical real-world use of the result (***"deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing a size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition; and creating, for records deleted from the first table, a corresponding record in a second database table"***)

If the applicant is able to find one and inserts it into the claims provide the location the element is found in the specification.

The claims 2-22 dependent from claim 1 is also rejected in the above analysis.

3. Regarding claim 23, 45, "A computer-readable medium having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to perform steps comprising:

'creating a record in a first database table for .....

'each instance has an active condition.....is not to be modified;

'the first table records are created for instances .....



'each record of the first table contains a field for each of a plurality of data.....

'assigning, for records of the multiple instances in the ....values to the....

'deleting from the first table records.....inactive condition;

'creating, for records deleted from the first table,,,,database table"

is directed to "abstract idea" because all of the elements in the claim 23,45 would reasonably be interpreted by one of ordinary skill in light of the disclosure at page 11, [26], page 12-16 [32], page 19 [38] , page 20-21 as software, such that the method "software per se" performing "algorithm, formula, or routines or calculation or manipulating "multiple instances of an activity or inactive condition[s], is "non-statutory subject matter" and **claim 23,45, do not have** "practical application" because the "final result" by the claimed invention in the claim 23,45 elements particularly ***"deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing a size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition; and creating, for records deleted from the first table, a corresponding record in a second database table"*** is not producing "useful, tangible and concrete" and therefore, claim 23,45 is a non-statutory subject matter.

The claimed invention is subject to the test of State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. Specifically State Street sets forth that the claimed invention must produce a ***"useful, concrete result."*** In other words "the claims lack the

necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. They are, at best, functional descriptive material *per se*.

The **Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility** states in section IV C. 2 b. (2) (on page 21 in the PDF format):

The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. However, the tangible requirement does require that the claim must recite more than a § 101 judicial exception, in that the process claim must set forth a practical application of that § 101 judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77 (invention ineligible because had “no substantial practical application.”).

If, Claim 23,45 have the result of producing “real-world” results related to ***“deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing a size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition; and creating, for records deleted from the first table, a corresponding record in a second database table”*** however the claim[s] do not specify that the result either output, displayed or at least stored to a user, but merely manipulating database table record instances particularly values in the fields, furthermore, ***without practical usage*** of the ***“creating, for records deleted from the first table, a corresponding record in a second database table”*** and without producing “real-world” useful results to the user

The examiner reviewed the specification at page 11, [26], page 12-16 [32], page 19 [38], page 20-21 but was unable to find a practical real-world use of the result (***“deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing a size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition; and creating, for records deleted from the first table, a corresponding record in a second database table”***)

If the applicant is able to find one and inserts it into the claims provide the location the element is found in the specification.

*“Merely claiming nonfunctional descriptive material stored in a computer-readable medium does not make the invention eligible for patenting. For example, a claim directed to a word processing file stored on a disk may satisfy the utility requirement of 35 U.S.C. 101 since the information stored may have some “real world” value. However, the mere fact that the claim may satisfy the utility requirement of 35 U.S.C. 101 does not mean that a useful result is achieved under the practical application requirement. The claimed invention as a whole must produce a “useful, concrete and tangible” result to have a practical application”, see **MPEP 2106(II)A**.*

Also, examiner notes that merely “creating, for records deleted from the first table, a corresponding record in a second database table” is not a positive recitation of a real world result. Thus the claimed result is not tangible and thus the claimed result is

not a "useful, concrete and tangible result." The court in State Street noted that the claimed invention in Alappat constituted a practical application of an abstract idea because it produced *a useful, concrete and tangible result* the display of a smoothed heart beat to a system user. The Federal Circuit further ruled that it is of little relevance whether a claim is directed to a machine or process for the purpose of a § 101 analysis. AT&T, 172 F.3d at 1358, 50 USPQ2d at 1451 (see the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility, Annex II).

The examiner reviewed the specification but was unable to find a practical real-world use of the result ( claim 1, claim 23, claim 45, and claim 47, for example claim 1, 23: "creating, for records deleted from the first table.....second database table"). If the applicant is able to find one and inserts it into the claims provide the location the element[s] is found in the specification.

In the above analysis, claims 24-44 dependent from independent claim 23 is also rejected., furthermore, independent claim 45 is also rejected in the above analysis.

**For "General Analysis for Determining Patent-Eligible Subject Matter", see 101 Interim Guidelines as indicated below:**

[<http://www.uspto.gov/web/offices/pac/dapp/ogsheet.html>](http://www.uspto.gov/web/offices/pac/dapp/ogsheet.html)

see MPEP 8<sup>th</sup> edition, Rev 5, Aug 2006,

***No new matter to be added***

**Claim Rejections - 35 USC § 103**

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. ***Claims 1-19,23-41, are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellow et al. [hereafter Bellow], US Patent No. 6477525 in view of Nakano et al. [hereafter Nakano], US Pub.No. 2003/0217075 filed on Jan 27,2003.***

6. As to claim 1,23,45, Bellow teaches a system which including 'maintaining information regarding multiple instances of an activity, each instance having an active condition in which information about instance is to be modified or an inactive condition in which information about the instance is not to be modified' [col 2, line 6-8, col 4, line 40-44], Bellow is directed to relational database management system, more specifically Bellow suggests "summary tables or materialized views that are created from the base tables, further these base tables are periodically updated as the new data is being added to the tables that corresponds to instances of an activity related to data tables;

'creating a record in a first database table for each of the multiple instances in the active condition [col 11, line 64-67], Bellow specifically teaches materialized view corresponds to creating views that contain tables for example as detailed in fig 8, each record containing a field for each of a plurality of data types, one or more of the fields in each active instance record having a value indicative of the active condition' [col 12, line 50-61], Bellow specifically teaches materialized view is defined by the query for example see query 2 at page 12, line 52-59, particularly having ""product\_name, city, month, as records and joining tables with appropriate condition as detailed in col 12, line 50-61;

'assigning, for records of the multiple instances in the inactive condition, values to the one or more fields indicative of the inactive condition' [col 12, line 24-34, col 13, line 17-20], Bellow specifically teaches assigning specific conditions for join the table or join between the common section and the testing the condition for non-matching join;

'deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition' [col 15, line 18-22], Bellow specifically teaches materialized view may be rewritten in order to delete or removing duplicate records using "DISTINCT " operation as detailed in col 15, line 18-22, also note that Bellow suggests "update" materialized view by adding or removing records periodically [col 2, line 6-8], therefore, "delete, update, add" records are integral part of any relational database management structure;

'creating, for records deleted from the first table, a corresponding record in a second database table' [col 16, line 25-30].

It is however, noted that Bellow does not specifically teach 'reducing a size of the first database table to prevent degradation of response times ', although Bellow specifically suggests materialized views that a database must contain in order to efficiently process a queries is reduced, thereby reducing the size of the database , thus eliminating the overhead associated with the database views [col 5, line 6-11]. On the other hand, Nakano et al. disclosed 'reducing a size of the first database table to prevent degradation of response times' [page 1, col 1, 0007, col 2, 0014], Nakano suggests both insert and delete process in providing, efficiency managing "free space" in database[s], particularly, prevent the deterioration of storage efficiency and eliminate reorganization or delay the reorganization period [page 1, col 2, 0014].

It would have been obvious to one of the ordinary skill in the art at the time of applicant's invention to incorporate the teachings of Nakano et al., into rewriting a query in terms of a summary based on one-to-one and one – to - many losslessness of joins in relational database query of Bello et al. because both Bellow and Nakano are directed to databases, more specifically, Bello is teaches creating materialized views, joining multiple tables based on various conditions for example a set of non-matching joins established to be all joins and like [see Abstract, col 4, line 51-59, fig 8], while Nakano also teaches DBMS, particularly data tables [fig 4, page 2, col 2, 0040] .

One of the ordinary skill in the art at the time of applicant's invention to incorporate the teachings of Nakano et al., into rewriting a query in terms of a summary based on one-to-one and one – to - many losslessness of joins in relational database

query of Bello et al. because that would have allowed users of Bello to use free space management table, particularly, prevent the deterioration of storage efficiency and eliminate reorganization or delay the reorganization period, without using additional areas and without deteriorating processing performance in insert and delete processes as suggested by Nakano et al. [page 1, col 2, 0014], thus improving the quality and reliability of the system.

7. As to claim 2,24, Bellow disclosed 'wherein no record of the second table is updated after being created' [col 4, line 60-64].

8. As to claim 3,25, Bellow disclosed 'wherein the inactive condition corresponds to an instance of the activity being complete' [col 8, line 37-40].

9. As to claim 4,26, Bellow disclosed 'wherein data in a first table record at the time of deletion is copied to the corresponding second table record' [col 8, line 55-60].

10. As to claim 5,27, Bellow disclosed 'wherein substantially all of the data in the first table record at the time of deletion is copied to the corresponding second table record' [col 8, line 55-60, line 66-67].

11. As to claim 6,28, Bellow disclosed 'wherein the first table contains only records for instances in the active condition' [col 9, line 5-7].



12. As to claim 7,29, Bellow disclosed 'wherein the one or more of the fields comprises a flag having a first value if an instance is active and a second value if an instance is inactive' [col 9, line 13-15].

13. As to claim 8, 30, Bellow disclosed 'wherein the one or more of the fields comprises a field containing, for inactive instance records, a time of completion of the instance' [col 9, line 63-66].

14. As to claim 9,31, Bellow disclosed 'creating a view comprising the first and second tables' [col 9, line 54-57].

15. As to claim 10,14,32,36, Bellow disclosed 'creating a third database table' [col 9, line 66-67], Bellow specifically teaches creating materialized view that has base tables A,B, and C;

'ceasing creation of records in the second table' [col 10, line 1-2];

'creating, for each of the records deleted from the first table after creation of the third table, a corresponding record in the third table' [col 10, line 48-55].

16. As to claim 11,33, Bellow disclosed 'wherein said creating a third database table comprises creating the third database table after a preset time period has elapsed' [col 11, line 1-7].

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17. As to claim 12,34, Bellow disclosed 'deleting the second database table'  
[col 12, line 6-10].

18. As to claim 13, 35, Bellow disclosed 'renaming the second database table'  
[col 12, line 43-46]

19. As to claim 15,37, Bellow disclosed 'deleting a subsequently created table for  
each newly created table upon the number of tables reaching a predetermined level'  
[col 13, line 52-57].

20. As to claim 16, 38, Bellow disclosed 'archiving a copy of a table prior to deletion'  
[col 15, line 11-17].

21. As to claim 17,39, Bellow disclosed 'creating a view comprising the non-deleted  
tables' [col 16, line 51-54].

22. As to claim 18,40, Bellow disclosed 'creating a subsequent database table  
comprises renaming the previously crated table' [col 12, line 43-46]

23. As to claim 19,41, Bellow disclosed 'generating analysis data based on data in  
the first and second tables' [col 29, line 62-65].

**Claim Rejections - 35 USC § 103**

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**25. Claim 20-22,42-44,46, are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellow et al. [hereafter Bellow], US Patent No. 6477525 in view of Nakano et al. [hereafter Nakano], US Pub.No. 2003/0217075 filed on Jan 27,2003 as applied to claim 1,23, above, and further in view of Colossi et al. [hereafter Colossi] US Pub.No. 20040139061, filed on Jan 13, 2003**

26. As to claim 20, 42,46, Bellow disclosed 'relational database materialized views and records as detailed in fig 8, furthermore, Bellow also suggests "fact table, Time table" containing records corresponds to first table, second table respectively. It is however, noted that Bellow , Nakano do not specifically teach "generating a first Online Analytical Processing (OLAP) cube, combining the first and second cubes into a virtual OLAP cube'.

On the other hand, Colossi disclosed generating a first Online Analytical Processing (OLAP) cube' [page 2, col 1, 0017-0018 page 4, 0068], Colossi specifically teaches multidimensional metadata object model that defines schemas used in relational database representing multidimensional data, further Colossi specifically

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suggests "cube model" to describe OLAP structure as detailed in page 4, col 1, 0068; , combining the first and second cubes into a virtual OLAP cube'[page 4, col 1, 0071]. As noted in the fig 11, Colossi suggest one instance of each meta data object in an on-line analytical processing layer, any inactive dimensions area dimensions put in dimension product, dimension market, dimension time area [fig 22-25] can be used to filter data, also users can manipulate or drag columns and rows to the area using their mouse. If the users drag a dimension from the area to the columns or rows area, data becomes more detailed. If the users drag an active dimension to the area, the table shows aggregated totals [see fig 22-25].

It would have been obvious to one of the ordinary skill in the art at the time of Applicant's invention to incorporate the teachings of Colossi et al. into rewriting a query in terms of a summary based on one-to-one and one-to-many joins of Bellow et al., reserving pages of database of Nakano et al. because Bellow, Nakano, Colossi are specifically directed to "relational database query", more specifically Bellow et al. directed to creating materialized views, joining multiple tables based on various conditions for example a set of non-matching joins established to be all joins and like [see Abstract, col 4, line 51-59, fig 8], Nakano also teaches DBMS, particularly data tables [fig 4, page 2, col 2, 0040], while Colossi is directed to multidimensional calculations for a relational OLAP engine, more specifically, defining cube model metadata objects that generates from metadata objects having one or more dimension metadata objects, also specifying multidimensional aggregations in a relational OLAP

system [page 2, col 1, 0021], both Bellow and Colossi teach summary tables or materialized views [see Bellow: fig 8; Colossi: page 3, col 2, 0065], both specifically teach query optimizing [Bellow: fig 2, col 9, line 46-62; colossi: page 3, col 2, 0064] and both are from same field of endeavor.

One of the ordinary skill in the art at the time of applicant's invention to incorporate the teachings of Colossi et al. into rewriting a query in terms of a summary based on one-to-one and one-to-many joins of Bellow et al., reserving pages of database of Nakano et al. .because that would have allowed users of Bellow, Nakano et al. to create, access, modify, or delete multidimensional metadata objects, and store in a single database, further, it allows to define and join "star-join" schema that has "Time, Product, and other dimensional tables" to a central "fact table" [Colossi: page 4, col 2, 0075, fig 3], hence star schema, all of the dimension metadata objects are connected in a star shape to a central facts metadata object to create a cube model, thus bring the advantages of "flexible metadata" cube model and streamlines the deployment and management of OLAP solutions, and improves the performance of OLAP tools and applications as suggested by Colossi page 3, col 2, 0063.

27. As to claim 21,43, Colossi disclosed 'generating a second OLAP cube comprises obtaining records from the second table' [page 5, col 1, 0077];

'assigning a unique incremental identifier value to each record in the second table' [page 4, col 2, 0076];

'storing the incremental identifier value for the last record obtained to generate the second OLAP cube' [page 5, col 1, 0082];

'subsequently obtaining additional records from the second table, the additional records not being processed to form the second OLAP cube' [page 5, col 2, 0083];

'updating the second OLAP cube based on the additional records' [page 5, col 2, 0086].

As noted in the fig 11, Colossi suggest one instance of each meta data object in an on-line analytical processing layer, any inactive dimensions area dimensions put in dimension product, dimension market, dimension time area [fig 22-25] can be used to filter data, also users can manipulate or drag columns and rows to the area using their mouse. If the users drag a dimension from the area to the columns or rows area, data becomes more detailed. If the users drag an active dimension to the area, the table shows aggregated totals [see fig 22-25].

28. As to claim 22,44, Colossi disclosed 'generating a second OLAP cube comprises inputting data from second table records into a star-schema and storing said star-schema after generation of the second OLAP cube' [page 4, col 2, 0073, page 7, col 1, 0102];

'said updating the second OLAP cube comprises modifying the stored star-schema and using data from the additional second table records and regenerating the second OLAP cube based on the modified star-schema' [page 4, col 2, 0075].

As noted in the fig 11, Colossi suggest one instance of each meta data object in an on-line analytical processing layer, any inactive dimensions area dimensions put in dimension product, dimension market, dimension time area [fig 22-25] can be used to filter data, also users can manipulate or drag columns and rows to the area using their mouse. If the users drag a dimension from the area to the columns or rows area, data becomes more detailed. If the users drag an active dimension to the area, the table shows aggregated totals [see fig 22-25].

**(10) Response to Argument**

***Claim Rejections - 35 USC § 101***

a) At page 15-16, applicant argues that “the invention of claims 1-46 are statutory subject matter under section 101 because they each produce a “useful, concrete, and tangible result” as required by *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d 1368, 1373-74, 47 USPQ2d 1596, 1601-02 (Fed. Cir. 1998), namely, reducing the size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition. Furthermore, Applicant submit that support for this explicit recitation in claim 1 is provided by at least paragraph 3-12 and fig 1-3 of this application and that the inventions of independent claims 23 and 45 produce the same useful, concrete, and tangible result as the invention of claim 1.

As to the above argument [a], the examiner respectfully disagrees with the Appellant in finding that all of the claims in the application are invalid under 35 USC 101.

As stated in the Final Rejection dated 6/27/2007, one may not patent every “substantial practical application” of an idea, law of nature or natural phenomena because such a patent “in practical effect be a patent on the [abstract idea, law of nature or natural phenomena/naturally occurring article] itself, see “Gottschalk v. Benson, 409 U.S.63,71-72,175 USPQ 673,676 (1972).



The claims in Gottschalk were directed to a mathematical method running on a computer: converting binary-coded-decimal (BCD) numerals into pure binary numerals for use with general purpose digital computer of any type. Gottschalk at 65.

The Supreme Court held in Gottschalk that “one may not patent an idea. But in practical effect that would be the result if the formula for converting BCD numerals to pure binary numerals were patented in this case. The mathematical formula involved here has no substantial practical application except in connection with a digital computer, which means that if the judgment below is affirmed, the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself.” Gottschalk at 71-72.

Therefore, whether a claim recites a machine implemented process is not determinative of whether that process claim is statutory. Thus, a claim that is nothing more than a machine-implemented abstract idea is invalid.

Moreover, the Supreme Court also held that “[h]ere the “process” claim is so abstract and sweeping as to cover both known and unknown uses of the BCD to pure binary conversion. The end use may (1) vary from the operation of a train[,] to verification of drivers’ licenses [,] to researching the law books for precedents[;] and (2) be performed through any existing machinery or future-devised machinery or without any apparatus. [see Gottshcalk at 68].

The Examiner finds that the claims in the instant application share the same characteristics as the claims in Gottshalk. The claims 1,23,45 in the instant application are directed to a computer-readable medium, data processing apparatus or merely machine-implemented abstract idea. These claims are (1) so abstract and sweeping as to cover both known and unknown uses of the underlying math, (2) so abstract and sweeping as to be applicable to a wide variety of unrelated applications.

For example, independent claim 1 recites "A method for maintaining information regarding multiple instances of an activity, each instance having an active condition in which .....modified, the method comprising:

creating a record in a first database.....

assigning, for records of the multiple instances.....

deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing the size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition; and

creating, for records deleted .....database table"

claim 1 elements would reasonably be interpreted by one of ordinary skill in light of the disclosure at page 11, [26], page 12-16 [32], page 19 [38], page 20-21 as software, such that the method is software, per se, is "non-statutory subject matter" and **claim 1** do not have "practical application" because the "final result" by the claimed invention in the claim 1 elements particularly ***"deleting from the first table records of***

*instances having values in the one or more fields indicative of the inactive condition thereby reducing a size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition; and creating, for records deleted from the first table, a corresponding record in a second database table"* is not producing "useful, tangible and concrete". Furthermore, the claims cover any data base structure containing records of instances. In other words, the claims are so broad as to cover every "substantial practical application" as discussed in Gottschalk.

In response to the Examiner's rejections, the Appellant cites [at page 15 in the appeal brief] to the Court of Appeals for the Federal Circuit (CAFC) decision in State Street Bank & Trust Co. v. Signature Financial Group Inc., 149 F.3d 1368, 1373-74, 47 USPQ2d 1596, 1601-02 (Fed. Cir. 1998), The examiner notes that State Street was decided by a lower court, and therefore, does not overrule the Supreme Court decision in Gottschalk.

Moreover, the Examiner interprets the State Street decision differently that the Appellant does. The Appellant interprets State Street as upholding claims that "reducing the size of the first database table to prevent degradation of response times when database users access the records....."

The Examiner reads the case very differently. The Examiner interprets the holds in State Street to be narrow in scope: that a dollar value output is a "concrete, useful, tangible" result. The decision says so expressly (See State Street at 1373).

Also, examiner notes that the CAFC has upheld other computer-implemented algorithm claims, where the outputs were narrowly claimed [see *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352 (Fed.Cir.1999) (upholding claims directed to a long-distance telephone billing process containing mathematical algorithms that generated PIC codes); *In re Alappat*, 33 F.3<sup>rd</sup> 1526 (Fed.Cir.1994) (upholding claims directed to computer-implemented mathematical algorithms that generated smooth waveform display on a rasterized monitor); *Arrhythmia Research Technology, Inc. v. Corazonix Corp.*, 958 F. 2d 1053 22 USPQ2d 1033 (Fed.Cir.1992) (upholding claims directed to the transformation of electrocardiograph signals from a patient's heartbeat by a machine through a series of mathematical calculations that output the condition of a patient's heart).

It is further noted that the common thing between above cited cases was a test to determine whether the claimed invention produces a "useful, concrete and tangible result"[*State Street* at 1373]. In comparison, the independent 1 in the instant application recites particularly "***deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing a size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition; and creating, for records deleted from the first table, a corresponding record in a second database table.*** Examiner, notes that the "***creating, for records deleted from the first table, a corresponding record in a second database table***" falls under the Gottschalk definition of a claim that "is so abstract and sweeping as to cover both

known and unknown uses. Examiner also respectfully disagrees with the Appellant [page 15] in regards to the applicability of State Street. Examiner finds that “*creating, for records deleted from the first table, a corresponding record in a second database table*” is far too broad to constitute a “useful, concrete, and tangible results”.

Examiner finds that all of the claims 23,45 in the instant application share this defect. Claims 2-22, 24-44, 46 depend from claims 1, 23, 45 also rejected in the above analysis.

b) At page 17-18, claims 1, applicant argues that “Bello and Nakano do not establish prima facie obviousness of claim 1 because Bello and Nakano, either alone or in combination, do not disclose at least the features of “each instance having an active condition in which information about the instance is to be modified or an inactive condition in which information about the instance is not to be modified, ..., creating a record in a first database table for each of the multiple instances in the active condition, ..., deleting from the first table records of instances having values in the one or more fields indicative of the inactive condition thereby reducing the size of the first database table to prevent degradation of response times when database users access the records for the instances in the active condition; and creating, for records deleted from the first table, a corresponding record in a second database table”.

In response to applicant's argument[b] that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by

combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Further, references within the statutory terms of 35 USC 103 qualify as prior art for an obviousness determination only when analogous to the claimed invention. *In re Clay*, 966 F.2d 656,658 (Fed. Cir. 1992). There are two separate tests define the scope of analogous prior art: (i) whether the art is from the same field of endeavor, regardless of the problem addressed and, (ii) if the reference is not within the" field of the inventor's endeavor, whether the reference still is reasonable pertinent to the particular problem with which the inventor is involved. *In re Deminski*, 796 F.2d 436, 442 (Fed. Cir. 1986); see also *In re Wood*, 599 F.2d 1032, 1036 (CCPA 1979) and *In re Bigio*, 381 F.3d 1320,1325 (Fed.Cir.2004). Furthermore, "there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness"...It is however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the interferences and creative steps that a person of ordinary skill in the art would employ". *KSR Int'l v. Teleflex Inc.*, 127S. Ct. 1727,1741 (2007) (quoting *In re Kahn*, 441 F.3d 977,988(Fed.Cir.2006)).

In this case, Bello is directed to processing queries, more specifically, query includes a cumulative aggregate functions, particularly under specifications, generating

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results of the cumulative aggregate function in the query [see Abstract]. As noted, Bellow is teaches "relational database management system", more specifically not only creating tables, but also creating "summary tables or materialized views " from the base tables where these tables are periodically updated with respect to "new data" either being added or capturing any change in the data particularly instances of the related data tables that corresponds to instances of an activity related to data tables [see col 2, line 6-8, col 4, line 40-44], further, it is noted that Bellow also teaches "joining tables" is based on specific condition such as select product\_name,city,month,sum(dollarsales) as sumsales,

From Sales,Product,Region,Time

Where

Sales.prod\_key = Product.prod\_key

Sales.region\_key = Region.region\_key

.....Group by product\_name,city,month

as detailed in col 12, line 50-61

Examiner further noted that Bellow suggests multiple specific conditions for join tables or join between the common section and the testing the condition for "non-matching" join that corresponds to indicative of inactive condition applied to one or more database table fields or attributes as detailed in col 12, line 24-34, col 13, line 17-20.

Nakano et al. is directed to reserving pages of database, more specifically inserting, deletion of specific data from the database table [see Abstract], because Nakano specifically teaches “saving database table space” or “free area” in the tables Nakano also suggests control information in relation with specific “table data” particularly blocks 1 through 4 and their usage status thereby effectively managing database table space [page 2, col 2 0046, fig 5].

It is noted in the final office action that, Bellow does not specifically teach ‘reducing the size of the first database table to prevent degradation of response times’, although Bellow specifically suggests materialized views that a database must contain in order to efficiently process a queries is reduced, thereby reducing the size of the database, thus eliminating the overhead associated with the database views [col 5, line 6-11]. On the other hand, Nakano et al. disclosed ‘reducing the size of the first database table to prevent degradation of response times’ [page 1, col 1, 0007, col 2, 0014], Nakano suggests both insert and delete process in providing, efficiency managing “free space” in database[s], particularly, prevent the deterioration of storage efficiency and eliminate reorganization or delay the reorganization period [page 1, col 2, 0014].

It would have been obvious to one of the ordinary skill in the art at the time of applicant’s invention to incorporate the teachings of Nakano et al., into rewriting a query in terms of a summary based on one-to-one and one – to - many losslessness of joins



in relational database query of Bello et al. because both Bellow and Nakano are directed to databases, more specifically, Bello teaches creating materialized views, joining multiple tables based on various conditions for example a set of non-matching joins established to be all joins and like [see Abstract, col 4, line 51-59, fig 8], while Nakano also teaches DBMS, particularly data tables [fig 4, page 2, col 2, 0040] .

One of the ordinary skill in the art at the time of applicant's invention to incorporate the teachings of Nakano et al., into rewriting a query in terms of a summary based on one-to-one and one – to - many losslessness of joins in relational database query of Bello et al. because that would have allowed users of Bello to use free space management table, particularly, prevent the deterioration of storage efficiency and eliminate reorganization or delay the reorganization period, without using additional areas and without deteriorating processing performance in insert and delete processes as suggested by Nakano et al. [page 1, col 2, 0014], thus improving the quality and reliability of the system.

c) At page 19, claim 1, applicant argues that Bello does not disclose, teach, or suggest that the duplicate common section rows are records of instances having values in the one or more fields indicative of the inactive condition"

As to the argument [c], examiner disagree with the applicant because, firstly, Bellow is directed to relational database management, more specifically "summary

tables or materialized views that are "created "from the "base tables", further these tables are periodically "updated as the new data is being added to the tables that corresponds to instances of an activity related to data tables as detailed in col 2, line 6-8, col 4, line 40-44;

secondly, as best understood by the examiner, creating materialized views from the base tables [because without creating base tables, it is not possible to create view[s] of a table] is integral part of Bellow's teaching, also materialized view corresponds to creating views that contain tables for example as shown in fig 8, particularly, fact table, time table, month table, year table have records; also, each table having attributes or fields having specific value[s] that corresponds to value indicative of the active condition [see col 12, line 50-61].

thirdly, as noted from prior art, Bellow specifically suggests "join condition" testing matching and non-matching joins i.e., join between specific instances for example sales and region and sales and time as detailed in col 13, line 17-20; Bellow is specifically directed to "relational database management, particularly showing various "Query" examples [see col 2, line 40-43], or SQLs, as best understood by the examiner, "delete, update, add" records are integral part of any "relational database management", for example Bellow suggests "update" operation in materialized view by adding or removing records [col 2, line 6-8]

It is however, noted that Bellow does not specifically teach 'reducing the size of the first database table to prevent degradation of response times ', although Bellow

specifically suggests materialized views that a database must contain in order to efficiently process a queries is reduced, thereby reducing the size of the database , thus eliminating the overhead associated with the database views [col 5, line 6-11]. On the other hand, Nakano et al. disclosed 'reducing the size of the first database table to prevent degradation of response times' [page 1, col 1, 0007, col 2, 0014], Nakano suggests both insert and delete process in providing, efficiency managing "free space" in database[s], particularly, prevent the deterioration of storage efficiency and eliminate reorganization or delay the reorganization period [page 1, col 2, 0014].

It would have been obvious to one of the ordinary skill in the art at the time of applicant's invention to incorporate the teachings of Nakano et al., into rewriting a query in terms of a summary based on one-to-one and one – to - many losslessness of joins in relational database query of Bello et al. because both Bellow and Nakano are directed to databases, more specifically, Bello is teaches creating materialized views, joining multiple tables based on various conditions for example a set of non-matching joins established to be all joins and like [see Abstract, col 4, line 51-59, fig 8], while Nakano also teaches DBMS, particularly data tables [fig 4, page 2, col 2, 0040] .

One of the ordinary skill in the art at the time of applicant's invention to incorporate the teachings of Nakano et al., into rewriting a query in terms of a summary based on one-to-one and one – to - many losslessness of joins in relational database query of Bello et al. because that would have allowed users of Bello to use free space

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management table, particularly, prevent the deterioration of storage efficiency and eliminate reorganization or delay the reorganization period, without using additional areas and without deteriorating processing performance in insert and delete processes as suggested by Nakano et al. [page 1, col 2, 0014], thus improving the quality and reliability of the system.

d) At page 20-21, claim 1, applicant argues that, "Bello also does not disclose creating for records deleted from the first table, a corresponding record in a second database table."

As to the above argument [d], examiner disagree with the applicant because, Bello teaches not only creating number of tables, but also suggests querying tables for example query 5-6, further creating, inserting, updating, deleting operations are integral part of Bello's teachings because, Bello specifically teaches creating "materialized view" [see Abstract], also materialized view created based on the "relational tables", therefore, without creating database tables, join tables, querying tables would not have been possible.

e) At page 21-22, claim 1, applicant argues that Nakano does not disclose "reducing the size of the first database table to prevent degradation of response times"

As to the argument [e], Examiner respectfully traverses. In response to applicant's argument that Bello and Nakano, either alone or in combination, do not disclose, teach, or suggest claim 1, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Bello discloses "database management system" particularly database query operations on various tables or materialized views [see Abstract]. Nakano also discloses database management system [fig 4], particularly database storage operations employing search methods using database and the structure as detailed [fig 5-6].

Bello does not explicitly disclose "reducing the size of the first database table to prevent degradation of response times", however, Nakano teaches supporting various commands such as inserting data, deleting data from the database tables [see Abstract, page 1, 0004, line 1-3], further, Nakano also teaches designating, switching data storage locations depends on requirement such that new area for data allocation continuously provided [page 1, 0015, page 3, 0050], also suggests comparing "free area" with "data size" to be used and accordingly data storage area is "updated" [page 3, 0053], therefore, Nakano specifically suggests not only allocating storage area, but also re-organizing data allocation, particularly organizing database table space

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effectively thereby improving storage efficiency and access performance of the database [page 1, 0013]. Therefore, based on Bello in view of Nakano, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the teachings of Nakano to the database management system of Bello in order to allocate storage area based on data size.

Examiner applies above arguments to independent claims 23 and 45 contain limitations that are analogous to the limitations of claim 1. Also, examiner applies above arguments to claims 2-22, 24-44, 46 depend from claims 1, 23, 45.

f) At page 23, claims 2, 24, applicant argues that "Bello does not teach that no record of the second table is updated after being created."

As to the above argument [f], firstly, Bello suggests materialized views having tables, secondly, Bello also suggests generating aggregating values by a one-to-many lossless join, further "join" only possible only between at least two tables for example join of A,B,C or Join A,B and D [col 3, line 60-63], also it is noted that edit, update, insert, delete commands are integral part of Bello because, Bello specifically directed to "relational database" and writing "query".

Examiner applies above arguments to claim 24.

- g) At page 23-24, claim 3, 25, applicant argues that Bello does not teach that the inactive condition corresponds to an instance of the activity being complete.

As to the above argument [g], as best understood by the examiner, firstly, Bello suggests join graphs that represent base tables and edges represents joins between the base tables, secondly, Bello also suggests comparing join graph of materialized view with the join graph the results in "joins that are common" to both materialized view and query, therefore, whatever, "not common" may be treated as "inactive" with respect to that query and corresponds to instance of the activity as detailed in col 8, line 37-40.

Examiner applies above arguments to claim 25.

- h) At page 24, claim 6,28, applicant argues that Bello does not teach that "the first table contains only records for instances in the active condition".

As to the above argument [h], Examiner disagree with the applicant because Bello teaches join condition is applied to data tables particularly applying "constraint" on column of the parent table as detailed in col 9, line 5-7.

Examiner applies above arguments to claim 28

- i) At page 24-25, claims 7,29, applicant argues that Bello does not disclose wherein the one or more of the fields comprises a flag having a first value if an instance is active and a second value if an instance is inactive"

As to the above argument [i], As best understood by the examiner, Bello suggests one-to-N join condition particularly with respect to data table satisfying conditions, if the condition is not met for example referential integrity relationship doesn't exists as detailed in col 9, line 13-15.

Examiner applies above arguments to claim 29

j) At page 25-26, claims 8.30, applicant argues that Bello does not teach that "the one or more of the fields comprises a field containing for inactive instance records, a time of completion of the instance".

As to the above argument [j], As best understood by the examiner, Bello teaches query process particularly base table of view. As noted base table typically would have column and row corresponds to fields containing data records and these base table[s] are periodically updated as new data is being added to the tables that corresponds to instances of an activity related to data table[s] [col 2, line 6-8, lcol 4, line 40-44, col 9, line 66-69].

Examiner applies above arguments to claim 30

k) At page 26, claims 11,33, applicant argues that "Bello does not disclose "wherein said creating a third database table comprises creating the third database table after a present time period has elapsed"]



As to argument [k], as best understood by the examiner, Bello teaches database management system, more specifically relational database system [col 1, line 13-16], Bello further teaches materialized views that are derived from one or more database tables and performing various database query operations such as join or join condition [col 8, line 25-28]. Bello also teaches query optimization particularly estimated cost of executing with respect to execution plan related to databases as detailed in col 11, line 1-7].

Examiner applies above arguments to claim 33.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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